Beach Closures and Contamination Action Plan

Goal Statement
The goal of the Beach Closure/Microbial Contamination Action Plan is to reduce microbial contamination in Sanctuary waters and to better identify sources of contamination in order to effectively allocate resources and evaluate health risks. Success will be evaluated through the attainment of ocean water quality standards and the reduction of beach closures and postings within the Sanctuary.

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Introduction

The central coast of California is internationally known for its incomparable shoreline. Travelers come from around the world to enjoy outstanding recreational opportunities including surfing, diving and kayaking; to view the spectacular coastal scenery; to observe wildlife resources such as sea otters, whales, and seabirds; and to enjoy the seemingly pristine beauty of the ocean. In 1992, public concern over the conservation of this exceptional resource led Congress to designate the Monterey Bay National Marine Sanctuary for its ecological significance and singular beauty. Since this designation, runoff and spills along the Sanctuary's coastline have periodically resulted in high levels of coliform bacteria being detected in coastal waters, resulting in hundreds of beaches closures or warnings annually.

Coliform bacteria are used as indicator organisms, and while they may not cause disease in humans, their presence tells us that water may be contaminated with organisms that do cause health impacts ranging from fever, flu-like symptoms, ear infection, respiratory illness, gastroenteritis, cryptosporidiosis, and hepatitis. Not only can humans be affected, but research into the cause of an alarming rise in mortality among the threatened southern sea otter population, shows that infectious agents have been implicated in nearly forty percent of these deaths. Preliminary data suggest that many of these deaths are caused by protozoal parasites and bacteria that are spread by fecal contamination of near shore marine waters by terrestrial animals or humans.

The local economies are also affected by beach closures. Tourism is the second largest industry in the Central California region after agriculture. Although statistics are lacking, since much of the tourism is related to the coast, an image of closed or contaminated beaches could be a multi-million dollar threat to the local economy. A significant aquaculture and kelp harvesting industry within the MBNMS is highly dependent upon unpolluted water, and beach closures cost local economies tourist dollars and jobs, and represent a loss to those who had planned beach visits.

Sources of contaminated water include runoff from urban, suburban and rural areas, an aging sewer infrastructure system pressed to meet increasing demands, contaminated flows from creeks and rivers and unidentified sources. Contributing factors that generate these sources include illicit storm drain connections, improper disposal of materials which clog pipes and cause overflows, cracked or damaged pipes, overflow of sewer systems during storm events, septic system leaching, non-point pollutant loading exposed to storm runoff, and various domestic and wildlife sources.

Beach Closures and Warnings

Beach closures or warnings result from a known discharge of sewage or laboratory results that indicate that the probable number of indicator organisms contained in a water sample exceed water quality standards. Since the identification of pathogens such as viruses in ocean water is difficult, time consuming, and expensive, current water quality testing methodology relies on the usage of the more readily detected and quantified coliform and fecal streptococci bacteria as indicator organisms. These organisms include total coliform, fecal coliform and enterococcus.

County Health Officers can take three discrete actions including closing a beach, issuing a warning, or announcing a rain advisory based on beach water quality monitoring data, sewage spills, and storm events.

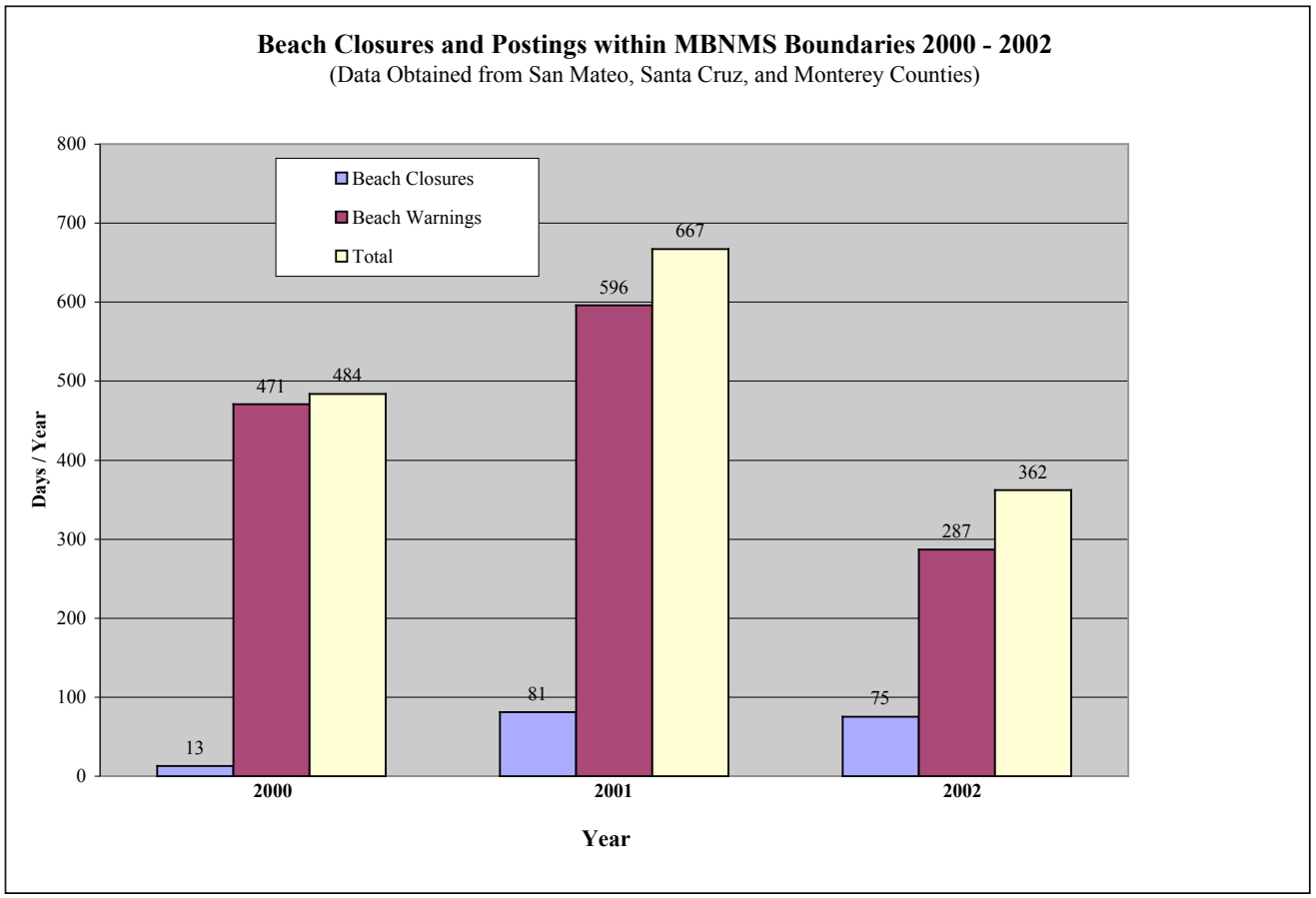
- A "Beach (ocean) Closure" occurs as a result of a known sewage spill or from repeated incidences of exceeding bacterial standards due to an unknown source. A closure is a notice to the public that the water is unsafe for contact and that there is a high risk of getting ill from swimming in the water. When a beach is closed, signs are posted alerting the public to stay out of the water.

- A "Beach Warning" sign means that at least one bacterial standard has been exceeded, but there is no known source of human sewage. The posting of warning signs alerts the public of a possible risk of illness associated with water contact. The placement of signs may be short term, when a single bacterial indicator standard is exceeded, or more permanent where monitoring indicates repeated contamination (e.g. from a storm drain). Warnings may also be posted where sources of contamination are identifiable and can be explained as not of human origin (e.g., resident marine mammals or seabirds).

- A "Rain Advisory" is often issued when it rains because it is known from past experience that rainwater carries pollution to the beach. After a rain, bacteria counts usually exceed the State standards for recreational water use.

Beginning in 1999, AB411 required local health officers to conduct weekly bacterial testing between April 1 and October 31 of waters adjacent to public beaches that have more than 50,000 visitors annually and are near storm drains that flow in the summer. This increased monitoring is responsible for a pronounced jump in the number of beach closures and postings between 1998 and 1999. Since this initial jump, Sanctuary beaches have continued to suffer from hundreds of closures or postings annually (Table 1).

Figure 2 - Sanctuary Beach Closures and Warnings 2000-2002



Not only is the public concerned with the high number of closures and warnings, but they are also concerned that the methods used to monitor and post beaches are insufficient to

accurately detect contamination and warn the public accordingly. While California has instituted the most comprehensive water quality monitoring programs in the nation, the program is compromised because current methods of enumerating indicator bacteria are too slow to provide full protection from exposure to waterborne pathogens.

Indicator bacteria assays take 18 to 36 hours to complete and during this time beachgoers may be exposed to harmful pathogens. By the time the beach is posted, the indicator bacteria may no longer be present in the near shore waters. Thus a beach may be open when it is contaminated, and posted when it is clean. Also, this lag time makes it difficult to track sources of microbiological contamination as the source has often become dispersed over a wide area by the time investigators arrive on the scene. Beach water quality monitoring is also temporally and geographically limited. Resources preclude environmental health departments from monitoring entire stretches of beaches, and at most, these locations are monitored bi-weekly. Recently published data show that temporal changes in indicator bacteria levels in beach water occur much more rapidly.

Many types of animals produce the indicator organisms, and a high percentage of beach closures and warnings are the result of unknown or diffuse sources. Data contained in the 2000 California Beach Closure Report shows that statewide:

- 37% of warnings posted and closures statewide were a result of unknown sources;
- 37% were caused by creeks/rivers;
- 12% were attributed to sewer lines;
- 12% to stormdrain/urban runoff;
- 3% to wildlife;
- <1% each to combined sewer overflow, domestic and agricultural animals, and rain.

In viewing these data it is important to recognize that there is a fundamental difference between beach closures and beach warnings. Beach closures result from known sewage spills or repeated exceedances of standards from unknown sources, whereas beach warning are a result of an exceedance of standards, but where there is no known source of human sewage (Tables 2, 3). Domestic discharges account for a high percentage of beach closures, but closures occur less frequently than warnings.

Figure 3 - Sources of Contamination – Postings

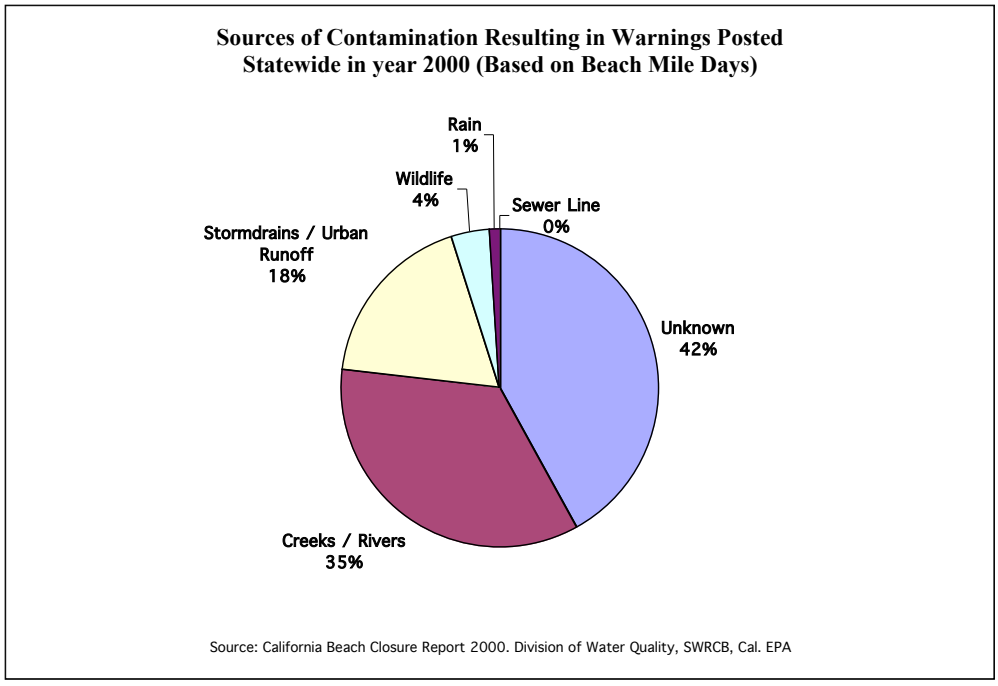
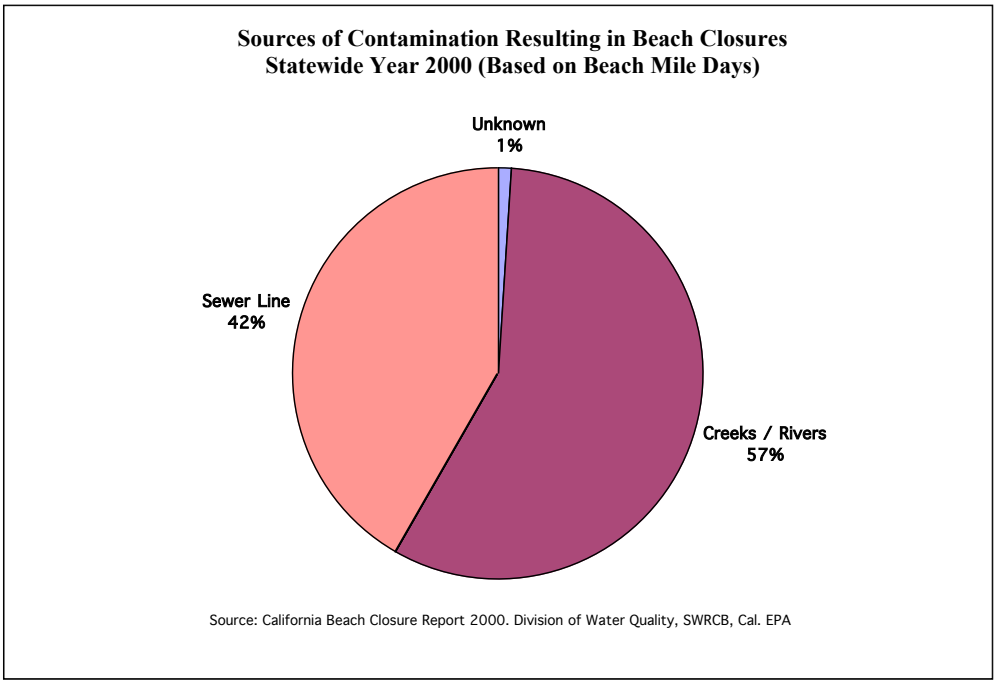


Figure 4 - Sources of Contamination - Closures



Domestic discharge represents an increased risk to human health and an emphasis will continue to be placed on the prevention of sewage spills through maintenance, repair, and illicit discharge detection from publicly owned sewage collection and treatment facilities. However, discharges from these facilities account for a small proportion of the total number of closures and postings. The majority of closures and postings are caused by diffuse or unknown sources, and strategies will also need to be developed that effectively reduce the bacterial loading to these sources. A wide range of potential risks of disease are also associated with the diffuse nature of these sources, illustrating the need for strategies that further research and develop analyses that better characterize near shore pollution and its effect on human and marine health.

Existing Statutory and Regulatory Framework
The Federal Clean Water Act and the California Water Code (Porter-Cologne Water Quality Control Act) establish the framework under which water quality is regulated in California.

Basin Plan and Ocean Standards
The State of California is divided into nine regional boards that regulate water pollution in their region. Each of these boards is responsible for administering regulations established by the Code, which directs each of the boards to develop a regional water quality control plan, or "Basin Plan." Basin Plans describe the beneficial uses of each of the region's water bodies, including warm and cold-water habitat, fish spawning, recreation, drinking water supply and several others. They also describe the water quality that must be maintained in order to allow those uses.
The regional boards implement the Basin Plans by issuing and enforcing state Waste Discharge Requirements or NPDES permits (National Pollutant Discharge Elimination System, pursuant to the Federal Clean Water Act). Anyone wishing to discharge waste to inland surface waters or the ocean from a pipe or waste facility (a “point source”) must obtain a NPDES permit from the regional board. The boards establish monitoring programs to be conducted by the discharger as a way of measuring compliance with permit provisions. Generally, sewer collection systems tributary to treatment facilities are permitted by Waste Discharge Requirements whereas the treatment facilities themselves are permitted through the NPDES system. The State Water Resources Control Board has stated that while sanitary sewer overflows and sewage spills are not subject to minimum mandatory penalties, the California Water Code provides for penalties for unauthorized discharges.

The State Water Resources Control Board is responsible for development and review of the California Ocean Plan, the Regional Boards are responsible for implementing the California Ocean Plan through NPDES permits.

AB 411& AB 1946
Increasing concern about beachwater quality prompted the approval of Assembly Bill 411 (AB411, the Right To Know Bill), which amends the Health and Safety Code of the State of California required the California State Department of Health Services to develop statewide beachwater-quality criteria and monitoring regulations.

Weekly monitoring that tests for the three indicator organisms is required from April to October at all beaches with more than 50,000 annual visitors or at beaches located in areas adjacent to storm drains that flow during the summer. Adjacent to the Sanctuary, San Mateo, Santa Cruz, Monterey, and San Luis Obispo counties each have beaches that meet these criteria. These results are compared to the criteria below, developed by the State Department of Health services in response to AB 411.

Total Coliform – 10,000 MPN
Fecal Coliform – 400 MPN
Enterococcus – 104 MPN

MPN is the most probable number, defined as the statistical concentration of bacteria in 100mL of sample water. Beaches with water samples that exceed the state's criteria for any one of the three indicators are to be posted with conspicuous warning signs to notify the public of health risks associated with swimming in these areas.

AB 1946, was approved in 2000 as a follow up to AB 411. This bill improves upon data collection requirements and public disclosure standards, and requires the state to collect better information on the type of action taken (i.e. advisories or closures) when beach testing uncovers pollution as well as the specific source of the problem.

Sanctuary Enforcement
The Sanctuary also plays a role in enforcing MBNMS regulations that prohibit discharges directly to the Sanctuary (with a number of exceptions, none which apply here), or discharges from outside the boundary of the Sanctuary that enter and injure a Sanctuary resource. The MBNMS enforcement philosophy is based on preventive enforcement, with a strong emphasis on outreach and education. While the Sanctuary has in the past relied primarily on the two Regional Water Quality Control Boards for enforcement of discharge violations, it does have enforcement capabilities that can result in civil penalties. Sanctuary emergency response staff are also involved when spills occur to gather information on the extent of the spill and assess damage to Sanctuary resources. The Sanctuary also prohibits the construction of new waste water treatment plant outfalls into the Sanctuary.

NPDES
In addition to the point source and waste discharge requirement programs, the State and Regional Boards regulate "non-point" source discharges via the Storm Water NPDES program. The storm water program is divided into two phases. Phase I was promulgated in 1987 and regulated "medium" and "large" municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater, construction activity disturbing 5 acres of land or greater, and ten categories of industrial activity. In the Sanctuary watersheds, the City of Salinas is covered under a Phase I permit.

Phase II of this program is now underway, and in 2003, the SWRCB adopted a General Permit for storm water discharges from regulated Small MS4s (municipalities within an urbanized area with a total population of at least 50,000, individual municipal populations of 10,000, and a population density of at least 1,000 per square mille) and small construction activities.

TMDLs
TMDLs (Total Maximum Daily Loads) are designated for state waters where water quality standards are not attained or that show signs of impacted for beneficial uses. Waters that do not meet standards or support their beneficial uses are listed on the 303(d) list of water quality limited segments. TMDL are load allocations to be developed by the Regional Water Quality Control Boards identifying the total amount of pollution that can be discharged to 303(d) listed waterbodies from all land use categories in the watershed. While several California beaches have been listed on the 2002 303 (d) list for Coliform Contamination, no beaches adjacent to the Sanctuary have been included on this list.

Previous Sanctuary Efforts Related to Microbial Contamination and Beach Closures

The Sanctuary's Water Quality Protection Program (WQPP) is a partnership effort designed to enhance and protect the physical, chemical and biological conditions in the Sanctuary and its adjacent lands. The WQPP has identified a variety of water quality issues and problems in the Sanctuary and its watersheds including sedimentation, nitrates, persistent pesticides, metals, oil and grease, and detergents, and has developed and initiated implementation of several plans to address them. The WQPP previously identified coliform contamination as a threat to human and ecosystem health, and although it was not a key focal point of previous efforts, several programs undertaken through previous plans have partly addressed the issue.

The Sanctuary's Water Quality Protection Program plans, Action Plan I: Implementing Solutions to Urban Runoff and Action Plan II: Regional Monitoring, Data Sharing and Interagency Coordination, both recommend additional assessments of coliform contamination sources, and follow-up technical strategies to address the urban runoff components of coliform contamination. Volunteer monitoring programs coordinated by the Sanctuary's Citizen Watershed Monitoring Network such First Flush, Urban Watch and Snapshot Day monitoring events have provided several years of data characterizing both wet and dry season urban runoff, including collecting and analyzing samples for bacterial indicator organisms. These data have been useful to local jurisdictions in identifying locations in the watersheds that need additional attention.

The Model Urban Runoff Program, developed by the cities of Monterey and Santa Cruz, the Monterey Bay National Marine Sanctuary, California Coastal Commission and the Regional Water Quality Control Board also includes guidelines for monitoring and source analysis for coliform bacterial and outlines an array of steps for technical follow up and education to reduce inputs.

The WQPP Agriculture and Rural Lands Action Plan was developed in 1999 to address agricultural water quality issues. The Agriculture and Rural Lands program indirectly plays a part in dealing with coliform contamination as sediment fate and transport can play an important role in bacterial survival. The sediment environment is more favorable to bacterial growth and survival, and it has been shown that stream sediments can contain bacteria counts much higher than the overlying water column. Additionally, nutrients are adsorbed on to particulate surfaces, thereby enabling the attached bacteria to grow more rapidly than those in free suspension, and increased turbidity reduces light penetration into the water column, enhancing the survivability of bacteria.

The Sanctuary also works with local jurisdictions to garner financial resources to address Microbial contamination issues. Recently, the Monterey Bay Sanctuary Foundation worked with the Cities of Monterey, Pacific Grove, and the Monterey County Department of Environmental Health to submit a joint proposal for funds under the Proposition 40 – Clean Beaches Initiative. The proposal seeks funding for a coordinated approach to addressing the beach closures and postings through sewer infrastructure diagnostics and repairs, a genetic source analysis, and monitoring and education programs. The Sanctuary also works with local jurisdictions to raise public awareness of Microbial contamination issues. In January of 2001, the Sanctuary co-hosted two public forums with local cities and counties on beach closures designed to share information on the sources of contamination and potential solutions to the problem.

This past work has focused on issues that are related to Microbial contamination, but the Sanctuary has not yet dealt comprehensively with the subject of beach closures and postings. Effectively addressing this issue will require a regional approach that cuts

across jurisdictional and political boundaries. An effort to reduce Microbial contamination and improve beach water quality monitoring will therefore build on the WQPP Memorandum of Agreement designed to facilitate interagency cooperation and signed by eight federal, state, and local entities during Sanctuary designation in 1992. The Sanctuary hopes to continue to successfully work with stakeholder groups and develop a plan that will effectively characterize the beach closure issue, create strategies to reduce the number of beach closures and postings, and identify funding mechanisms to implement the recommendations.

Strategy BC-1: Research

Strategy Description
Laboratory analysis of the three indicator organisms can take up to forty-eight hours, and during this time beachgoers may be exposed to harmful pathogens. Also, recent studies show that beachwater quality can vary greatly on both a temporal and spatial scale. To address these problems, the Sanctuary will seek to monitor developments in rapid indicator assessment, explore other potential indicators or methods that detect the pathogens themselves, and perform upstream genetic source analysis studies.

Activity 1.1: Investigate Rapid Indicator Assessment
Current indicator analysis requires 18 to 24 hour incubation times, and monitoring is geographically and temporally limited. Finding methods that can process samples in less time will reduce the risk to public health by ensuring that water quality is accurately evaluated and posted.

Implement methods that will result in quicker turn around times between sample and results (e.g. biosensors, enzymatic assays, Polymerase Chain ReActivity (PCR))
Research and implement real-time, continuous monitoring techniques
Team with research organizations with expertise in real-time monitoring – MBARI, Southern California Coastal Water Research Project (SCCWRP), SIMON

Status: Phase 1
Potential Partners: Monterey Bay Aquarium Research Institute (MBARI), Moss Landing Marine Labs (MLML), Sanctuary Integrated Monitoring Network (SIMoN), Southern California Coastal Watershed Research Project (SCCWRP), State Water Resources Control Board's Beach Water Quality Workgroup (BWQW), Counties for Implementation, private sector research laboratories/firms

Activity 1.2: Explore Other Potential Indicators
An ideal indicator organism would be found only when disease-causing agents were present at densities that could cause human health problems. Recognizing that current fecal indicators fall short of this goal, and are neither the most precise nor easily assayed, evaluate alternate indicators such as:

- Fecal sterols: Fecal Sterols, such as coprostanol, are formed in the gut of human and higher mammals by chemical or biological reactions, and tests can differentiate between human and animal sources
- Caffeine: Caffeine is a compound that is present in numerous beverages as well could be used as an indicator
- Long-chain alkylbenzenes (LABs –synthetic surfactant): LAB's are widely used as surfactants in commercial detergents, and as they are purely synthetic they are highly indicative of human sources. Because they are present up to one order of magnitude lower than fecal sterols, they are regarded as complementary to the fecal sterols

Status: Phase 2
Potential Partners: MBARI, SIMoN, SCCWRP, BWQW, Counties, private sector research laboratories/firms, Water Environmental Research Foundation (WERF), UC Davis

Activity 1.3: Explore the Potential to Analyze for Specific Pathogens (e.g., T. gondii)
Indicator organisms do not directly correspond to human health problems, and only indicate the potential presence of pathogens from untreated or partially treated sewage or

contaminated runoff. Alternatively, waterborne pathogens are difficult to detect and quantify, and specific methodology to detect them in samples is only in the development stages. Research in this area should be monitored for techniques that allow for the direct measurement agents suspected of impacting human and marine health.

Status: Phase 2
Potential Partners: Centers for Disease Control, UC Davis, SCCWRP, BWQW

Activity 1.4: Conduct Genetic Studies at Key Locations to Distinguish between Animal (Including Land Based, Marine Mammals And Birds) and Human Bacteriological Sources
It is difficult to pinpoint the exact physical location of the source of bacteriological contamination of beaches. However, distinguishing between anthropogenic and animal sources of contamination will help to better assess health risks and allocate resources. Information on the human or animal origin of fecal pollution gives an indication of the types of pathogens that may be expected, the risk of infection, and the treatment that may be required to control the transmission of disease. Animal fecal pollution is not without risks and, while many of the risks rare unknown, it is generally believed that animal sources pose less risk. Several methods have been studied to varying degrees of success including examining the ratio between fecal coliforms to fecal streptococci or total coliforms, multiple antibiotic resistance (MAR) analysis, ribotype analysis / genetic fingerprinting, and analyzing for human enteric viruses.

A. Coordinate with agencies and scientist on appropriate techniques
B. Actively seek partnerships between research institutions and local agencies

Status: Phase 1
Potential Partners: SCCWRP, BWQW, Counties, MBARI, MLML, universities

Strategy BC-2: Monitoring

Strategy Description
Resources and staffing limit the frequency and number of beaches that can be monitored on a regular basis, which can potentially jeopardize public health. This action will seek to develop scientifically justified monitoring protocols to ensure that contact with contaminated waters is reduced to the highest practicable extent. Collaborate with existing monitoring programs, and utilize the best available indicators and analysis equipment developed through ongoing research.

Activity 2.1: Include the Use of Technological Advances Noted in the Research Section, Such as Real Time Probes, Developed Through Ongoing Research, to Sample Beaches More Frequently and Expand the Geographic Extent of Sampling
Expand to locations with reported incidences of illness or where physical features (e.g. proximity to runoff, enclosed waters) suggest high contamination levels. Work with local jurisdictions and the Sanctuary Citizens Watershed Monitoring Network to secure funding to monitor these beaches.

Status: Phase 1
Potential Partners: County Departments of Environmental Health (County DEH's), MBARI, MLML, SIMoN, SCCWRP, BWQW, private sector research laboratories/firms

Activity 2.2: Encourage and Develop Funding for Local Jurisdictions to Perform Upstream Monitoring of Chronically Closed/Posted Beaches from Unknown Sources to Identify Sub Watersheds and Specific Locations Contributing to the Problem
Partner with local public works agencies, and when feasible, enlist volunteers to assist in assessment through collaboration with the Sanctuary Citizens Watershed Monitoring Network.

Status: Phase 1
Potential Partners: County DEH's, public works, CCLEAN, Sanctuary Citizens Watershed Monitoring Network

Strategy BC-3: Notification Program

Strategy Description
User groups desire to have access to water quality information before they depart for the beach. This strategy will seek to continue and expand upon existing notification systems.

Activity 3.1: Develop Improved Notification System for User Groups
Ensure that user groups have the appropriate beach status information prior to their departure and if beach are closed or warnings are posted, provide expected date of open status.

A. Continue and expand recorded phone messages
B. Continue and expand county websites and link to regional Sanctuary website.
C. Evaluate additional links / programs to improve access to information
D. Ensure that groups are aware of notification resources through public relations announcements
E. Build upon Surfrider's fax notification system

Status: Phase 1
Potential Partners: State and County parks, TV and radio news media, Coastal Commission, Surfrider, regional dive and surf shops

Strategy BC-4: Geographic Information System (GIS)

Strategy Description
GIS can be a powerful tool that decision makers can use to define problems and allocate resources. Local jurisdictions are encouraged to utilize GIS when making decisions about infrastructure replacement or when performing upstream analysis. Project prioritization could be determined by their proximity to sensitive areas or heavily used beaches. For the purpose of this plan, GIS refers to any mapping or drawing package, whether or not data is externally referenced.

Activity 4.1: Expand and Continue to Encourage Local Jurisdictions to Map Septic Sewer and Storm Drain Lines, and to Record Data on Reported Spills, Blockages, and Lateral Line Cleaning Work. Work with Jurisdictions to Develop Programs Which Are Not Already Doing So

A. Coordinate efforts with those developing Sewer System Management Plans
B. Coordinate methods including software, projections, formats
C. Encourage data and technology sharing between jurisdictions

Status: Phase 1
Potential Partners: Public Works agencies, Coastal Conservancy, Central Coast Joint Data Committee (CCJDC)

Activity 4.2: Encourage Local Jurisdictions to Map Problem Infrastructure Areas, Sensitive Habitats, Land Uses, Outfall Locations, and Critical Beaches

Status: Phase 2
Potential Partners: Public Works agencies, Coastal Conservancy, CCJDC

Activity 4.3: Determine Proximity of Problems to Sensitive Areas and Heavily Used Beaches to Develop Priorities and Generate Funding

Status: Phase 2
Potential Partners: Public Works agencies, Coastal Conservancy, CCJDC

Strategy BC-5: Source Control Program

Strategy Description
The working group identified private and public sanitary sewer systems, septic systems, and urban runoff as primary routes of anthropogenic bacterial contamination. The following are actions that will seek to reduce the input of contamination from the various sources.

Activity 5.1: Work with Local Jurisdictions to Enhance the Repair and Replacement of Sewer Mains

A. In order to determine the best allocation of resources and funding, prepare a regional list of main line repair and replacement projects drawing on those developed by local jurisdictions; tie-in to GIS database
B. Rank projects based on downstream closures and postings, proximity to sensitive resources, or high-use beaches
C. Leverage this information and this Action Plan to pursue and obtain funding sources

Status: Phase 1
Potential Partners: Coastal Conservancy, SWRCB, RWQCBs, Coastal Commission, public works agencies, state bond propositions, MRWPCA

Activity 5.2: Work with Local Jurisdictions to Reduce the Number of Sanitary System Overflows and Exfiltration from Publicly Owned Sewage Collection Systems

Blockage
Team with entities developing Sewer System Management Plans required by Waste Discharge Requirements. Ensure adequate ongoing maintenance and promote community support through outreach and public awareness so that jurisdictions have the financial ability to accomplish this task.

A. Utilize GIS and monitoring to improve identification, management, and follow up of main line obstructions, particularly locations with repeated incidences
B. Leverage resources and assist with the development source control measures and public outreach and education, focused on preventing sewer system overflows resulting from the introduction of fats, grease, and other materials that cause blockages. Expand these programs to a regional level
C. Ensure proper installation, testing, and inspection of sewers
D. Develop local or regional approved vendor list, franchise, or program similar to clean business certification program for grease haulers and line clearing vendors
E. Investigate alternative main line cleaning technologies
F. Assist local jurisdictions in funding line clearing and pump station maintenance / repair activities, and utilize the Sanctuary to develop public support for these activities
G. Encourage jurisdictions to require reporting of interceptor / trap cleaning and lateral cleaning
H. Encourage tracking in GIS
I. Conduct technical training / public education and outreach

Illicit Connections

A. Continue and expand detection program under Phase 2 efforts

Status: Phase 1
Potential Partners: Local public works agencies, MRWPCA

Activity 5.3: Work with Local Jurisdictions to Reduce the Number of System Upsets Caused by Private Laterals

Create mechanisms that identify and correct chronic problem areas. Public agencies cannot implement lateral maintenance because of the disruption that would occur on private property during rehabilitation, costs involved, and potential liability issues. Homeowners, for their part, are also reluctant to undertake repairs, as costs are typically $3,000 or more. This strategy encourages cities to implement a method that will reduce the number of overflows from laterals.

A. Three Strike Ordinance: if city crews are called to a site three times in a one-year period, encourage local jurisdictions to issue a cease and desist order to the homeowner to repair problem within ten days. If the problem is classified as a nuisance, city crews can fix immediately. (Phase 2)
B. Sale / transfer inspection program: work with local jurisdictions to develop an ordinance that requires the inspection of laterals prior to the sale or transfer of a property, which will require maintenance or repair of defective or damaged laterals. (Phase 1)
C. Develop "approved" vendor list for the Sanctuary cities and counties, model after existing program such as clean business program. (Phase 1)
D. Develop voluntary lateral inspection and repair program. (Phase 1)

Potential Partners: Local jurisdictions, city councils, realty associations

Activity 5.4: Work with Local Jurisdictions to Reduce Input from Septic Systems

A. Encourage jurisdictions to develop GIS layer of houses on septic systems and correlate to problem areas based on data from Citizens, city, county, and AB411 monitoring efforts. (Phase 1)
B. Target areas suspected of impacting water quality with educational materials. (Phase 2)
C. Inform citizens on proper use and maintenance. (Phase 1)
D. Ensure that pumpers are reporting system maintenance and require pumpers to submit logs. (Phase 1)
E. Encourage local jurisdictions to implement sale / transfer inspection program. (Phase 1)
F. Encourage local jurisdictions to utilize clean business–type program for pumpers (Phase 1)
G. Hold pumpers strictly accountable for improper disposal

Potential Partners: Local public works agencies, individual haulers, CCJDC, MRWPCA

Activity 5.5: Work with Local Jurisdictions to Reduce Microbial Contamination from Urban Runoff/Storm Drain

A. Coordinate Beach Closure action plan strategies with the Urban Runoff action plan, MURP, MERITO, and Phase 2 programs.
B. Leverage efforts to prepare regional educational, outreach and technical materials that address the issue of beach closure.
C. Investigate cost effective measures to treat or divert urban runoff where source control measures prove ineffective
D. Increase number of RV pump-out stations and provide incentives for their use

E. Remove sediments in catch basins and other areas prior to first rains of the season
F. Develop mechanism to address waste from homeless camps
G. Pet Droppings - Utilize existing materials and as necessary develop new methods, materials, or devices that will ensure that people clean up after their pets

Status: Phase 1
Potential Partners: RWQCBs, non-profits for outreach, public works agencies, MRWPCA

Strategy BC-6: Technical Training

Strategy Description
Raise the level of awareness of each of these industries to their impacts on the overall system. Let plumbers know that line cleaning can move clogs into city mains, train restaurant personnel in the proper use and maintenance of grease equipment, and promote a reporting program that will alert city staff to potential problems, e.g. problem laterals, behavioral problems, septic system malfunctions, improper grease disposal.

Activity 6.1: Working through Local Jurisdictions, Educate Plumbers, Grease Trap, and Sewer Industry on Proper Cleaning Techniques, Promote Reporting Program

A. Raise the level of awareness of each of these industries to their impacts on the overall system
B. Train restaurant personnel in the proper use and maintenance of grease equipment
C. Promote a reporting program

Status: Phase 1
Potential Partners: Public Works Agencies, MRWPCA, grease manufacturers

Activity 6.2: Working through Local Jurisdictions, Utilize Existing, or Adapt New Outreach/Training Modules for Targeted Public Servants (E.G. Planners, Technical Personnel - Coordinate with Phase II Efforts and Existing MBNMS Materials)

Status: Phase 1
Potential Partners: Public Works Agencies, MRWPCA

Activity 6.3: Develop Spill Response Training Module (See Emergency Response Strategy)

Status: Phase 1
Potential Partners: Public Works Agencies, MRWPCA

Strategy BC-7: Education

Strategy Description
The diffuse nature of microbial contamination illustrates the need to find solutions on a broad scale that reduce input at its source. Building off of existing programs, this strategy will develop a comprehensive educational program that increases the public's understanding of the issue, the sources of contamination, and the solutions. Because funding is critical to source control, the education strategy will also seek to develop support for local funding initiatives.

Activity 7.1: Develop Coordinated Regional Education Program Building and Expanding on Existing Materials and Efforts
Coordinate with regional Phase II efforts, and use existing MBNMS educational material, MERITO, and the Urban Runoff action plan education efforts. Utilize MBNMS to provide coordinated support to ensure consistent messages, facilitate collaboration with various groups, and leverage resources. Examples include topics such as proper septic tank maintenance, pet care, and grease disposal.

Status: Phase 1
Potential Partners: Local jurisdictions, MRWPCA, non-profits, city councils, RWQCBs

Activity 7.2: Develop Public's Understanding of the Importance of Reducing Microbial Contamination, the Sources of Contamination, and How They Can Be a Part of the Solution

Status: Phase 1
Potential Partners: Local jurisdictions, MRWPCA, non-profits, city councils, RWQCBs

Activity 7.3: Develop Understanding of Need for Local Funding to Address Issue

Status: Phase 1
Potential Partners: Local jurisdictions, MRWPCA, non-profits, city councils, RWQCBs

Strategy BC-8: Enforcement

Strategy Description
The Sanctuary will seek to coordinate and strengthen enforcement actions in line with the SWRCBs enforcement policy and Sanctuary discharge prohibitions.

Activity 8.1: Encourage Fair and Consistent Enforcement of Discharges Under the SWRCBs Enforcement Policy and Sanctuary Discharge Prohibitions

A. Review past enforcement efforts by the RWQCBs for consistency with the SWRCBs "Water Quality Enforcement Policy"
B. Identify cases where enforcement has not occurred, and analyze for consistency with either the State or Sanctuary policy, and develop protocols to address inconsistencies or gaps in existing policy

Status: Phase 1
Potential Partners: RWQCBs

Activity 8.2: Develop a Notification Mechanism between the Permittees, RWQCBs and the MBNMS
Work with RWQCBs and others to ensure that the Sanctuary will be notified of new and ongoing enforcement investigations and incidents of sewage discharges that have the potential to enter the Sanctuary.

Status: Phase 1
Potential Partners: Permit holders, RWQCBs

Activity 8.3: Coordinate and Strengthen Enforcement Actions with the RWQCBs
Sanctuary regulations provide for civil penalties for discharges directly into the Sanctuary or for discharges from outside the boundary of the Sanctuary that enter and injure a Sanctuary resource. Historically, the Sanctuary has relied on the RWQCBs for enforcement of sewage discharges, and Sanctuary policy generally avoids adding Federal enforcement fines if the State has already fined a violator, and this will continue to be the case. However, in some instances (based on prior violations, nature of discharge, agency resources, impact to Sanctuary, etc.), the Sanctuary will initiate enforcement actions, particularly when the RWQCB has not, or has been unable to do so under its authority. The Sanctuary will work with the Regional Boards ensuring consistent enforcement, and should also develop a coordinated system to track spills and ensure adequate emergency response (see *Strategy BC-9*). Notification mechanisms developed in Activity 8.2 will facilitate this action.

Status: Phase 1
Potential Partners: RWQCB

Strategy BC-9: Emergency Response

Strategy Description
This strategy will seek to track spills and ensure that a rapid, 24-hour a day spill response is available and that proper containment, disinfection and source control policies are developed and implemented.

Activity 9.1: Improve Reporting and Tracking of Spills

A. Develop a single number which when called by local governments or sewage districts, will alert all appropriate agencies, including the Sanctuary, to the presence of a spill.
B. Develop and publicize a system to inform the public and coastal businesses of local contacts to notify when they observe a spill, to ensure rapid containment response
C. Develop an interagency system to adequately log spills and track follow up actions

Status: Phase 1
Potential Partners: RWQCBs, local governments, OES

Activity 9.2: Encourage Local Governments to Develop Cross-Departmental, On-Call Systems, that Will Ensure Rapid, 24 Hour a Day Spill Response that Will Ensure Rapid Response And Maximize Containment.

A. Utilize continual on-call departments to reduce potential lag time associated with the mobilization of off-duty departments

Status: Phase 1
Potential Partners: Local jurisdictions

Activity 9.3: Encourage Local Governments to Develop Model Spill Response Program that Ensures Proper Techniques for Containment, Disinfection, and Source Control

A. Build off of Combined Sewer Overflow Technology Fact Sheets developed by the EPA.

Status: Phase 1
Potential Partners: EPA, local jurisdictions, RWQCB

Activity 9.4: Provide Sanctuary Enforcement Presence Where Necessary in the Field to Follow Up on Reported Spills and Assess Potential Injury to the Sanctuary

Status: Phase 1
Potential Partners: RWQCB

Strategy BC-10: Funding

Strategy Description
The implementation of many of the strategies contained in this plan are limited most by the lack of adequate funding. This strategy details methods in which the Sanctuary will work with its partners to obtain outside funding as well as to develop support for local funding initiatives.

Activity 10.1: The MBNMS Will Coordinate with Local Jurisdictions to Locate Funding Sources and Leverage Action Plans and Monitoring Results to Secure Funds for Strategy Implementation

- State bond and proposition funds
- California Coastal Conservancy, SWRCB and RWQCBs
- Federal Sources
- League of California Cities
- Quantify economic loss from beach closures, e.g. to support grant writing efforts

Status: Phase 1
Potential Partners: Local jurisdictions, RWQCBs, Coastal Conservancy, Coastal Commission, Trade and Tourism and Commerce departments, non-profits

Activity10.2: Build Public Support for Utility Fees, Bonds, or Other Local Funding Initiatives
Recent spills, beach closures, warnings, and studies linking human pathogens to sea otters have raised public awareness to the issue of microbial contamination of Sanctuary waters. However, many citizens do not realize the costs associated with addressing the issues and the burden that local jurisdictions face. A component of this strategy as well as the public education and outreach strategy, will seek to develop public support for bonds, fees, or other local initiatives that can pay for some of this much needed work.

Status: Phase 1
Potential Partners: Local jurisdictions, RWQCBs, Coastal Conservancy, Coastal Commission, Trade and Tourism and Commerce departments, non-profits

Citations

California Beach Closure Report 2000. Division of Water Quality, SWRCB, Cal. EPA
Jensen, P., Hanadi, R., Battenfield, T., Payne, S. Public Works. Identifying Bacteria Sources.
SWRCB General Counsel, Question and Answer Paper. April 17, 2001